BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2
Follow this format for each person. **DO NOT EXCEED FOUR PAGES**

NAME	POSITION TITLE
Joe W. Gray, PhD	Division Director
eRA COMMONS USER NAME Joegray	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Colorado School of Mines, Golden, CO	Prof. Eng.	1968	Physics
Kansas State University, Manhattan, KS	Ph.D.	1972	Physics

Positions and Honors

1972 – 1991 Biomedical Scientist, Biomedical Sciences Division, Lawrence Livermore National Laboratory (LLNL), Livermore, CA
1982 – 1991 Cytophysics Section Leader, Biomedical Sciences Division, LLNL, Livermore, CA
1984 – 1991 Adjunct Professor of Laboratory Medicine, UCSF, San Francisco, CA
1990 – 1995 Member, National Advisory Council for Human Genome Research.
1991 – 2003 Professor of Laboratory Medicine and Radiation Oncology, UCSF, San Francisco, CA
2003 – present Adj. Professor of Laboratory Medicine and Radiation Oncology, UCSF, San Francisco, CA
1991 – 1997 Director; Division of Molecular Cytometry, Dept. of Lab. Med. UCSF, San Francisco. CA
1992 – 1998 Senior Scientist (faculty), Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA
1992 – 1998 Director, Resource for Molecular Cytogenetics, LBNL, Berkeley, CA
1995 – 1997 Interim Director, UCSF Cancer Center, UCSF, San Francisco, CA
1997 – 2002 Science Council; Radiation Effects Research Foundation
1997 – present Program Leader; Breast Oncology, UCSF Comprehensive Cancer Center, San Francisco, CA
1999 – 2003 Member, Genome Study Section
2003 – present Director, Division of Life Sciences, Lawrence Berkeley National Laboratory, Berkeley, CA
2003 – present Associate Laboratory Director for Life and Env. Sci., Lawrence Berkeley National Laboratory, Berkeley, CA
2004 – present Member, Board of Scientific Advisors, National Cancer Institute, NIH
2005 – 2007 Translational Research Working Group, National Cancer Institute, NIH
2006 – 2007 Member, Committee on the state of science in nuclear medicine, Nat'l Academy Science.

Awards

Research Award, 13th Radiation Research Society, 1985; E.O. Lawrence Award, U.S. Department of Energy, 1986; Fellow, American Association for the Advancement of Science, 1996; Exceptional Service Award, U.S. Department of Energy, 1997; Schiffer Award, Cell Proliferation Society, 1999; Boerhaave Professor, Leiden University, the Netherlands, 2000; Curt Stern Award, American Society for Human Genetics, 2001; SPORE Leadership Award, National SPORE office, 2003; Alumni Fellow, Kansas State University, 2005; Distinguished Achievement Award, Colorado School of Mines, 2005; Doctor of Medicine, *Honoris Causa*, Tampere University, 2005; DOD Innovator Award, 2007; Brinker Award for Scientific Distinction: Basic Science, 2007; AACR Team Science Award, 2008.

Publications (Selected from 335 total)

Chin, L and Gray, JW. (2008) Translating insights from the cancer genome into clinical practice. Nature. 452:553-63.

TCGA Research Network (2008) Comprehensive genomic characterization defines human glioblastoma genes and core pathways. Nature. 2008 Sep 4. [Epub ahead of print]

Srivastava S, Gray JW, Reid BJ, Grad O, Greenwood A, Hawk ET; Translational Research Working Group. (2008) Translational Research Working Group developmental pathway for biospecimen-based assessment modalities. Clin Cancer Res.14:5672-7.

Guan Y, Kuo W-L, Stilwell J, Takano H, Lapuk A, Fridlyand J, Mao J-H, Yu M, Miller M, Santos J, Kalloger S, Carlson J, Ginzinger D, Celniker S, Mills GB Huntsman D., and Gray JW. Amplification of PVT1 contributes to the pathophysiology of ovarian and breast cancer. Clinical Cancer Res. 13:5745-5755, 2007.

Kenny PA, Lee GY, Myers CA, Neve RM, Semeiks JR, Spellman PT, Lorenz K, Lee EH, Barcellos-Hoff MH, Petersen OW, Gray JW, and Bissell MJ. (2007) The morphologies of breast cancer cell lines in three-dimensional assays correlate with their profiles of gene expression. Molecular Oncology, 1(1): 84-96.

Mao JH, Wu D, Perez-Losada J, Jiang T, Li Q, Neve RM, Gray JW, Cai WW, and Balmain A. (2007) Crosstalk between Aurora-A and p53: frequent deletion or downregulation of Aurora-A in tumors from p53 null mice. Cancer Cell, 11:161-73.

Chin K, DeVries S, Fridlyand J, Spellman P, Roydasgupta R, Kuo W-L, Lapuk A, Neve R, Qian Z, Ryder T, Chen F, Feiler H, Tokuyasu T, Kingsley C, Dairkee S, Meng Z, Chew K, Pinkel D, Jain A, Ljung B, Esserman L, Albertson D, Waldman F, and Gray JW. (2006) Genomic and transcriptional aberrations linked to breast cancer pathophysiologies. Cancer Cell, 10:529-41.

Neve RM, Chin K, Fridlyand J, Yeh J, Baehner F, Fevr T, Clark L, Bayani N, Coppe J, Tong F, Speed T, Spellman PT, Devries S, Lapuk A, Wang NJ, Kuo W-L, Stilwell JL, Pinkel D, Albertson DG, Waldman FM, McCormick F, Dickson RB, Johnson MD, Lippman M, Ethier S, Gazdar A, and Gray JW. (2006) A collection of breast cancer cell lines for the study of functionally distinct cancer subtypes. Cancer Cell, 10:515-27.

Macrae M, Neve RM, Rodriguez-Viciana P, Haqq C, Yeh J, Chen C, Gray JW, and McCormick F. (2005) A conditional feedback loop regulates Ras activity through EphA2. Cancer Cell, 8:111-8.

Hodgson JG, Malek T, Bornstein S, Hariono S, Ginzinger DG, Muller WJ, and Gray JW. (2005) Copy number aberrations in mouse breast tumors reveal loci and genes important in tumorigenic receptor tyrosine kinase signaling. Cancer Res., 65:9695-704.

Chin K, de Solorzano CO, Knowles D, Jones A, Chou W, Rodriguez EG, Kuo W-L, Ljung BM, Chew K, Myambo K, Miranda M, Krig S, Garbe J, Stampfer M, Yaswen P, Gray JW, and Lockett SJ. (2004) *In situ* analyses of genome instability in breast cancer. Nat. Genet., 36:984-8.

Cheng KW, Lahad JP, Kuo W-L, Lapuk A, Yamada K, Auersperg N, Liu J, Smith-McCune K, Lu KH, Fishman D, Gray JW, and Mills GB. (2004) The RAB25 small GTPase determines aggressiveness of ovarian and breast cancers. Nat. Med., 10:1251-6.

Volik S, Zhao S, Chin K, Brebner JH, Herndon DR, Tao Q, Kowbel D, Huang G, Lapuk A, Kuo W-L, Magrane G, De Jong P, Gray JW, and Collins C. (2003) End sequence profiling: Sequence-based analysis of aberrant genomes. Proc Natl Acad Sci USA, 100:7696-701.

Jain AN, Chin K, Børresen-Dale AL, Erikstein BK, Eynstein Lonning P, Kaaresen R, and Gray JW. (2001) Quantitative analysis of chromosomal CGH in human breast tumors associates copy number abnormalities with p53 status and patient survival. Proc Natl Acad Sci USA, 98:7952-7.

Hodgson G, Hager JH, Volik S, Hariono S, Wernick M, Moore D, Nowak N, Albertson DG, Pinkel D, Collins C, Hanahan D, and Gray JW. (2001) Genome scanning with array CGH delineates regional alterations in murine islet carcinomas. Nat. Genet., 29:459-64.

Albertson DG, Ylstra B, Segraves R, Collins C, Dairkee SH, Kowbel D, Kuo W-L, Gray JW, and Pinkel D. (2000) Quantitative mapping of amplicon structure by array CGH identifies CYP24 as a candidate oncogene. Nat. Genet., 25:144-6.

Shayesteh L, Lu Y, Kuo W-L, Baldocchi R, Godfrey T, Collins C, Pinkel D, Powell B, Mills GB, and Gray JW. (1999) PIK3CA is implicated as an oncogene in ovarian cancer. Nat. Genet., 21:99-102.

Kallioniemi A, Kallioniemi O-P, Sudar D, Rutovitz D, Gray J, Waldman F, and Pinkel D. (1992) Comparative genomic hybridization for molecular cytogenetic analysis of solid tumors. Science, 258:818-21.

Patents (Selected from 59 total)

Dolbeare F and Gray JW. Flow cytometric measurement of total DNA and incorporated halodeoxyuridine. U.S. Patents #4,585,736 (1986); #4,780,406 (1988); #4,812,394 (1989).

Gray JW and Pinkel D. Methods for chromosome-specific staining. U.S. Patents #5,447,841 (1995); #6,596,479 (2003); #6,607,877 (2003); #6,872,817 (2005).

Pinkel D, Gray JW, Kallioniemi A, Kallioniemi O-P, Sakamoto M, and Waldman F. Comparative genomic hybridization (CGH). U.S. Patents #5,665,549 (1997); #5,721,098 (1998); #5,965,362 (1999); #5,976,790 (1999); #6,159,685 (2000); #6,335,167 (2002); #7,238,484 (2007).

Shayesteh L and Gray JW. Genetic alterations associated with cancer. U.S. Patents #6,277,563 (2001); #6,475,732 B1 (2002).

Collins C, Volik S, and Gray JW. End sequence profiling. U.S. Patent #6,785,614 (2004).

Research Support

Ongoing Research Support

P50 CA58207 (Gray) 09/30/92 – 11/30/12
NIH/NCI
Bay Area Breast Cancer Translational Research Program (SPORE)
Project 2: Molecular Determinants of Response to Therapy and New Strategies to Treat Resistant Tumors (Gray)
The goal of this project is to test the hypothesis that aberrations involving receptor tyrosine kinase signaling downstream of activated growth factor receptors will modulate responses to receptor inhibitors. Development of predictors of responses of ERBB2 positive tumors to Herceptin will be approached first. This will be attempted by in vitro analyses of a collection of 60 breast cancer cell lines.
Role: Project PI

Administrative Core (Gray)
This Core is the operational backbone of the SPORE and provides overall administrative and financial management for all projects/cores.
Role: Core Director

P30 CA82103 (McCormick) 08/05/99 – 05/31/12
NIH/NCI
Cancer Center Support Grant
This grant provides support for Cancer Center infrastructure and program leadership. Dr. Gray is the Program Leader of the Breast Oncology Program.

P50 CA83639 (Bast) 09/01/99 – 08/31/11
NIH/NCI
SPORE in Ovarian Cancer/Markers for Assessment of Response to Therapy
This project supports genomic analysis of ovarian cancers with the goal of identifying aberrations that predict clinical outcome.
Role: Project PI

U54 CA112970 (Gray) 09/30/04 – 08/31/09
NIH/NCI
Systems–Based Predications of Responses to Cancer Therapy
The goal of this program is to develop and experimentally validate a computational model of Raf–MEK–ERK signaling in breast cancer that will predict individual responses to therapeutic agents that inhibit Raf–MEK–ERK signaling.
Role: PI

SmithKline Beecham Corporation (Gray) 01/01/06 – 1/26/09
Molecular Predictors of Drug Response in Breast Cancer
The goal of this project is to provide GSK with a set of gene expression and protein level markers that predict the response (apoptosis, change in proliferation index and/or change in growth rate) to two GSK compounds in a panel of 50 breast cancer cell lines and test these in breast cancer cell lines grown in matrigel cultures and as xenografts. Also, to optimize cell culture instrumentation and software to facilitate current and future compound evaluation.
Role: PI

U24 CA126477 (Fisher) 09/28/06 – 08/31/11
NIH/NCI
Targeted and Global Proteomic Strategies for Early Breast Cancer Detection
The goal of this multi-institutional project is to develop a targeted strategy for discovery of molecular markers in serum that signal the presence of early breast cancer.
Role: Co-PI

U24 CA126477 (Gray) 09/28/06 – 08/31/09
NIH/NCI/NHGRI
The Berkeley Cancer Genome Center
The goal of this multi-institutional project is to assess transcriptional changes in human brain, lung and ovarian cancers provided by the NCI and NHGRI as part of the Cancer Genome Anatomy Project.
Role: PI

BC061995 (Gray) 09/17/07 – 09/16/12
USAMRMC
Early Detection of Metastasis-Prone Breast Cancers
The goal of this multi-institutional project is to develop anatomic and histologic molecular imaging strategies to detect metastasis prone breast cancers before they have metastasized.
Role: PI

Completed Research Support

Cellgate (Gray) 11/01/06 – 10/31/07
Molecular Predictors of Biological Response in Breast Cancer
The goal of this project is to provide Cellgate with a set of gene expression and protein level markers that predict the response (apoptosis, change in proliferation index and/or change in growth rate) to GSK compounds in a panel of 50 breast cancer cell lines.
Role: PI

NNA06CA81A (Gray) 10/01/05 – 09/30/07
NASA Ames
Nanoelectrode Proteomics Array for Kinase Activity Profiling toward Early Cancer Diagnosis during Space Travel.
The goal of this project is to develop an ultrasensitive, multiplex, and label-free proteomics chip for astronaut healthcare through quick kinase activity profiling and correlate the kinase profiles to cancer diagnosis.
Role: PI

U54 CA090788 (Tempero) 09/26/01 – 12/31/07
NIH/NCI
Mechanism Based Evaluations of ErbB Targeted Agents
Project: Interactions of the ErB–Receptor Tyrosine Kinases in Breast Cancer
The overall goal of this project is to develop molecular markers that predict response to EGFR–family inhibitors, especially Herceptin and Omnitarg.
Role: Project PI

UO1 ES012801 (Hiatt) 09/29/03 – 09/28/10
NIEHS
Bay Area Breast Cancer and the Environment Research Center/Environmental Effects on the Molecular Architecture and Function of the Mammary Gland across the Lifespan (Werb, Project 1)
This project studies environmental effects on the molecular architecture and function of the mammary gland across the lifespan.
Role: Co-investigator - terminated

NNA04CF751 (Barcellos–Hoff) 10/01/03 – 09/30/08
NSCOR, NASA
Mechanisms of HZE Damage and Repair in Human Epithelial Cells
The goal of this project is to determine using state–of–the–art imaging, genomic and genetic tools which dose and radiation quality, under what cellular and microenvironment circumstances, affect normal epithelial cell behavior associated with cancer risk.
Role: Co-investigator